31873
S/129/61/000/012/003/005
E193/E383

11710

AUTHORS: Brovman, M.Ya., Mel'nikov, A.F., Tsomik, I.I. and Mimukhin, B.M., Engineers

TITLE: Heat-treatment of welded constructions

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, no. 12, 1961, 28 - 29

TEXT: The object of the present investigation was to develop an improved method of stress-relieving of welded constructions. To this end, the stress-distribution in fillet-welded beams of various shapes before and after different types of heat-treatment was studied by X-ray diffraction and with the aid of wire strain gauges. It was found that, in addition to tensile and compressive stresses, bending and torsional stress may be set up in welded constructions. One of the heat-treatments studied consisted of heating the weld with suitably mounted travelling torches. When this treatment was carried out in such a way that the material adjacent to the weld was heated without raising the temperature of the weld itself, tensile stresses were set up in the weld which, as a result, became

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plastically deformed. If the difference, ΔT, between the temperature of the cold-welding and the heated part of the welded construction was correctly chosen, the residual stresses disappeared after treatment of this type. The correct temperature interval can be calculated from a formula:

$$\Delta T = \sigma_s / E\alpha$$

where σ_s is the yield strength of the steel,
E its elastic modulus, and
α the linear coefficient of thermal expansion.

The rate of torch traverse is given by:

$$v = E\alpha q / c\gamma\delta\sigma_s ,$$

where q is the linear heat-power rating of the torch,
c is the specific heat of the steel,
γ its density, and
δ the thickness of the material.

Heat-treatment of S/129/61/000/012/003/005
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v = 0.0068 q/δ for carbon and low-alloy steels. The effectiveness of this treatment was studied on welded box-beams, stress-relieved with the aid of equipment shown diagrammatically in the figure. This consisted of two oxy-acetylene torches (1), mounted symmetrically opposite each other in such a way that both sides of the beam could be heated simultaneously, and two water-spraying jets (2) for cooling the welds while the adjacent material was being heated. The whole device was moved along the beam on suitably mounted rollers. The consumption of acetylene and oxide was, respectively, 3.5 and 4.2 m^3/h per torch, the water consumption being 0.5 litres/min per jet. When the traverse rate was correctly chosen, this treatment was more effective than stress-relieving in a furnace. Thus, after a treatment at a traverse rate of 25 cm/min, the residual stresses in the beam studied were 3.45 times lower than in untreated specimens and 3.25 times lower than in specimens stress-relieved in a furnace. The absence of residual stresses in welded constructions, stress-relieved by this method, was confirmed by X-ray analysis and by measuring the internal stresses by standard methods. The process described in the present paper

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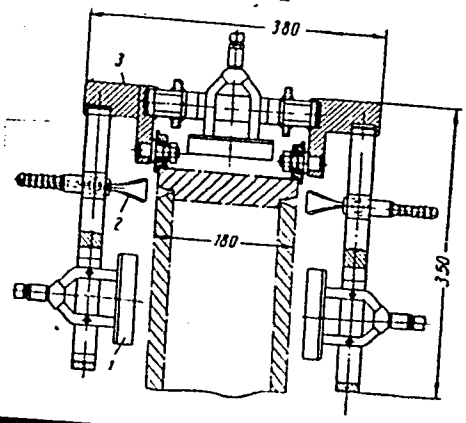
can be used for stress-relieving of both fillet and butt welds, is easily automated and is 25 - 30 times shorter than furnace heat-treatment. When it is used on beams with a wall thickness of 20 - 40 mm, the traverse rate of the torches should be 10 - 30 cm/min. Great care must be taken to ensure that only the weld is cooled by the water jets during this treatment.

[Abstracter's note: this is an abridged translation.]

There is 1 figure.

Figure:



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S/170/61/004/012/005/011
B104/B138

26.2161

AUTHORS: Brovman, M. Ya., Surin, Ye. V.

TITLE: Approximate solution to equations of the parabolic type, which is applicable to heat-conduction problems

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 4, no. 12, 1961, 75 - 82

TEXT: The solution of the one-dimensional heat-conduction equation yields a function $T(x,t)$ which can be approximated with the aid of the polynomial $T_n(x,t) = \sum_{m=0}^{n} f_m(t)x^m$. $f_m(t)$ can be chosen so that $T_n(x,t)$ and $T(x,t)$ will coincide in n points. The boundary conditions provide two differential equations of n-th order for the determination of $f_o(t)$ and $f_1(t)$. 2n constants appear in the solution of these equations. In general, the initial conditions cannot be satisfied exactly; however, the constants can be chosen so that the values of $T_n(x,0)$ in 2n points will agree with those of $T(x,0)$. In this way, approximate solutions to the one-dimensional heat conduction equation can be obtained and their accuracy will increase

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Approximate solution to equations of the ...

with n. Solutions to the problem concerned are obtained in the form of the series

$$T_n(x,t) = f_0(t) + xf_1(t) + \frac{x^2}{2a}\frac{df_0(t)}{dt} + \frac{x^3}{6a}\frac{df_1(t)}{dt} + \cdots$$

or

$$T_n(x,t) = f_0(t) + \sum_{m=1}^{n} \frac{x^{2m}}{a^m(2m)!}\frac{d^m f_0(t)}{dt^m} + \qquad (3).$$

$$+ x\left[f_1(t) + \sum_{m=1}^{n} \frac{x^{2m}}{a^m(2m+1)!}\frac{d^m f_1(t)}{dt^m} \right].$$

The cooling of a plate with a thickness 2d, for which the boundary condition $\partial T/\partial x = -\frac{\alpha}{\lambda}T$ is valid ($x = \pm d$), is treated, as also the cooling of a cylinder with radius R, for which the boundary condition $\partial T/\partial r = -\alpha T/\lambda$ is valid ($r = R$). The cooling of a plate is calculated by a numerical example. Results obtained in first and second approximations are presented in Figs. 1 and 2. There are 3 figures and 4 Soviet refer-

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Approximate solution to equations of the ... S/170/61/004/012/005/011
B104/B138

ences.

ASSOCIATION: Yuzhno-Ural'skiy mashinostroitel'nyy zavod, g. Orsk
(South Ural Machine-building Factory, Orsk)

SUBMITTED: July 26, 1961

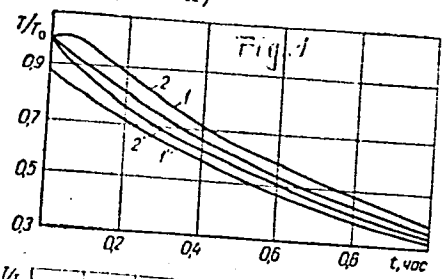

Fig. 1. Temperature variation of the plate. Legend: (1) and (2) temperatures at x = 0; (1') and (2') temperatures at x = d. (1) and (1') are first approximations, (2) and (2') are second approximations.

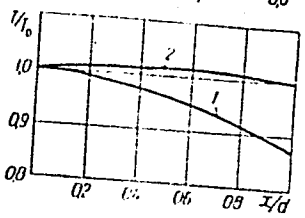

Fig. 2. Initial temperature distribution in the plate. Legend: (1) first approximation; (2) second approximation.

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BROVMAN, M. Ya.

Studying the deformation of metal on continuous billet mills. Soob.AN Gruz.SSR 26 no.1:47-52 Ja '61. (MIRA 14:3)

1. Akademiya Nauk Gruzinskoy SSR, Institut metallurgii, Tbilisi. Predstavleno chlenom-korrespondentom Akademii F.N. Tavadze.
(Rolling(Metalwork))

BROVMAN, M.Ya.; RIMEN, V.Kh.; BELOV, Ye.M.; KRYLOV, A.P.; VOLKOGON, G.

Investigation of electric power parameters in the rolling of nonferrous metals. TSvet. met. 34 no.8:60-65 Ag '61. (MIRA 14:9)

1. Yuzhno-Ural'skiy zavod tyazhelogo mashinostroyeniya (for Brovman, Rimen, Belov). 2. Orskiy zavod obrabotki tsvetnykh metallov (for Krylov, Volkogon).
(Rolling (Metalwork)) (Nonferrous metals)

AZARENKO, B.S., kand. tekhn. nauk; AFANAS'YEV, V.D., kand. tekhn. nauk; BROVMAN, M.Ya., inzh.; VAVILOV, M.P., inzh.; VENGIK, A.B., inzh.; GOLUBKOV, K.A.; GUBKIN, S.I., akademik [deceased]; GUREVICH, A.Ye., inzh.; DAVYDOV, V.I., kand. tekhn. nauk; DROZD, V.G., inzh.; YERMOLAYEV, N.F., inzh.; ZHUKEVICH-STOSHA, Ye.A., inzh.; KIRILIN, N.M., kand. tekhn. nauk; KOVYNEV, M.V., inzh.; KOGOS, A.M., inzh.; KOROLEV, A.A., prof.; KUGAYENKO, M.Ye., inzh.; LASKIN, A.V., inzh.; LEVITANSKIY, B.A., inzh.; LUGOVSKIY, V.M., inzh.; MEYEROVICH, I.M., kand. tekhn. nauk; OVCHAROV, M.S., inzh.; PASTERNAK, V.I., inzh.; PERLIN, I.L., doktor tekhn. nauk; POBEDIN, I.S., kand. tekhn. nauk; ROKOTYAN, Ye.S., doktor tekhn. nauk; SAF'YAN, M.M., kand. tekhn. nauk; SMIRNOV, V.V., kand. tekhn. nauk; SMIRNOV, V.S.; SOKOLOVSKIY, O.P., inzh.; SOLOV'YEV, O.P., inzh.; SIDORKEVICH, M.A., inzh.; TRET'YAKOV, Ye.M., inzh.; TRISHEVSKIY, I.S., kand. tekhn. nauk; KHENKIN, G.N., inzh.; TSELIKOV, A.I.; GOROBINCHENKO, V.M., red. izd-va; GOLUBCHIK, R.M., red. izd-va; RYMOV, V.A., red. izd-va; DOBUZHINSKAYA, L.V., tekhn. red.

[Rolling; a handbook] Prokatnoe proizvodstvo; spravochnik. Pod red. E.S.Rokotiana. Moskva, Metallurgizdat. Vol.1. 1962. 743 p. (MIRA 15:4)
1. Akademiya nauk BSSR (for Gubkin). 2. Chlen-korrespondent Akademii nauk SSSR (for Smirnov, TSelikov).
(Rolling (Metalwor))—Handbooks, manuals, etc.)

BROVMAN, M.Ya.

Calculating forces in plastic deformation considering the irregular distribution of temperatures. Kuz.-shtam. proizv. 4 no.7:5-8 Jl '62. (MIRA 15:7)

(Forging)

S/133/62/000/001/005/010
A054/A127

AUTHORS: Brovman, M. Ya., Gertsev, A. I., Zelichenok, B. Yu., Krivonosov, Yu. I., Rimen, V. Kh., Sokol, V. N., Mel'nikov, A. F.

TITLE: Investigating the power parameters of the 2800 mill of the Orsko-Khalilovskiy metallurgicheskiy kombinat (Orsk-Khalilovo Metallurgical Combine)

PERIODICAL: Stal', 22, no. 1, 1962, 45 - 48

TEXT: To increase the output of the 2800 mm mill, tests were carried out at the Orsko-Khalilovskiy metallurgicheskiy kombinat (Orsk-Khalilovo Metallurgical Combine), in cooperation with the Yuzhnoural'skiy mashinostroitel'nyy zavod (Southern Ural Mechanical Engineering Plant). These tests were aimed at investigating the motor capacity and the metal pressure on the rolls. The mill consisted of two stands: a 2-high roughing stand (with rolls of 60XH (60KhN) and 60 XГ (60KhG) steel, barrel diameter: 1,150 mm, roll-neck diameter: 690 mm), and a reversing 4-high finishing stand (work-roll diameter: 800 mm, diameter of the support rolls: 1,400 mm). Carbon and low-alloy steel sheets (Ст .3кп/St.3kp, 14ГН /14GN, 15ХСНД /15KhSND, Ст .0/St.0, Ст .5/St.5), 8 - 50 mm thick, 1,500 -

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2,500 mm wide and 18 m in length are rolled on the stands. The operation of the 2-high stand consists of 4 longitudinal passes, tilting through 90° and 6 - 8 passes for lateral deformation, with 2 - 4 subsequent longitudinal passes. In order to ensure accurate dimensions, a special gauge is used in which several rods of the same height are mounted instead of one and in which the wire pickups are connected in series, thus not depending on the load distribution between the rods. The power parameters were determined by rolling 41 slabs (2.7 - 4.7 tons) on the 2-high and 36 strips on the 4-high stand. The rolling conditions on the 2-high stand are given in a table. The pressure values obtained for the 2-high stand are 1,040 tons during the first longitudinal rolling, 1,940 tons during the lateral rolling and 2,360 tons during the second longitudinal rolling. The metal pressure on the 4-high stand is 2,090 tons, usually the stand works with 1,300 - 1,700 tons pressure and a reduction of 20 - 25%. The pressures actually applied during rolling remain below the permissible level. The results were also checked by comparing them with experimental values for the motor torques, calculated for various metal pressures. The comparison yielded practically identical values. The pressure gaugings were carried out at roll-rotation rates of 30 - 45/min on the 2-high stand and at 60 - 80 rpm on the 4-high stand. By increasing the roll

speed the metal pressure could be raised by 8 - 10% on the 2-high stand and by 5 - 7% on the 4-high stand. The final conclusions drawn from these tests were that the 2-high and the 4-high stands of the 2,800 mm strip mill are not fully loaded when rolling St.3 and St.3kp sheets, and, taking into account the motor capacity, the reductions could be increased by 30 - 40%, thus raising the stand output by 10 - 15%. However, actually it is only possible to reduce the number of passes from 8 to 6 when rolling laterally. The best way to improve the operation of the mill is by modifying the reductions on both stands in such a way, that the reduction in thickness on the 2-high stand be increased thus producing a thinner strip for the 4-high stand. There are 3 figures and 9 references: 1 non-Soviet-bloc and 8 Soviet-bloc. The reference to the English-language publication reads as follows: A. Nadai, M. I. Manjone. Journal of Applied Mechanics, 1941, no. 6.

BROVMAN, Mikhail Yakovlevich; LEVIT, Ye.I., red.izd-va; ROKOTYAN, Ye.S., red.; ISLENT'YEVA, P.G., tekhn. red.

[Power parameters of continuous billet mills] Energosilovye parametry nepreryvnykh zagotovochnykh stanov. Moskva, Metallurgizdat, 1962. 149 p. (MIRA 15:12)
(Rolling mills)

S/182/63/000/001/001/012
A004/A126

AUTHORS: Brovman, M. Ya., Dodin, Yu. S.

TITLE: Problems concerning the pressure working of bimetals

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, no. 1, 1963, 3 - 5

TEXT: Since forging and rolling of bimetals is being employed to a growing extent, not only the calculation of the deformation stresses, but also determining the possibility of deformation, while the cohesion between the metal layers is ensured, is of interest for practical purposes. The authors study various problems connected with the plastic deformation of forgings consisting of several layers with different mechanical properties. They are analyzing the diagram of plane deformation, including the stress components, speed components and yield point, and derive a number of formulae, taking into account the various technological factors. The solutions obtained for forging operations refer, in an analogous mode, also to the rolling, drawing and pressing of bimetallic strip. There are 5 figures.

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DOBROSKOK, I.I.; SURIN, Ye.V.; BROVMAN, M.Ya.; MIKHAYLOV, G.M.; KRULEVETSKIY, S.A. Prinimali uchastiye: ASFANDIYAROV, R.F.; BELOV, Ye.M.; IVANOV, V.I.; MARKOV, V.I.; SOLOV'YEV, Yu.P.; PIMENOV, F.A.; TUROMSHEV, A.F.; KHVES'KO, V.A.; NIKITSKIY, N.V.

Investigating the power parameters of a continuous steel casting plant. Stal' 22 no.3:223-225 Mr '62. (MIRA 15:3)

1. Yuzhnoural'skiy mashinostroitel'nyy zavod (for Asfandiyarov, Belov, Ivanov, Markov, Solov'yev). 2. Novolipetskiy metallurgicheskiy zavod (for Pimenov, Turomshev, Khves'ko). 3. TSentral'nyy nauchno-issledovatel-skiy institut chernoy metallurgii (for Nikitskiy).
(Continuous casting--Equipment and supplies)

BROVMAN, M. Ya.; SURIN, Ye. V.

Method of determination of the heat transfer coefficient. Zav. lab. 28 no.12:1470-1472 '62. (MIRA 16:1)

(Heat—Transmission)

BROVMAN, M.Ya.; DODIN, Yu.S.

Shaping bimetal by pressure. Kuz.-shtam. proizv. 5 no.1:3-5 Ja '63. (MIRA 16:2)

(Laminated metals) (Sheet-metal work)

BROVMAN, M.Ya.; MIKHAYLOV, G.M.

Use of graphite bushings in the sliding bearings of coke machinery. Koks i khim. no.6:56 '63. (MIRA 16:9)

1. Yuzhno-Ural'skiy zavod tyazhelogo mashinostroyeniya.
(Coke industry—Equipment and supplies)

BROVMAN, M.Ya.; SURIN, Ye.V.

Calculation of thermal stresses in an ingot during crystallization. Inzh.-fiz. zhur. 6 no.5:106-113 My '63. (MIRA 16:5)

1. Yuzhno-ural'skiy mashinostroitel'nyy zavod, Orsk.
(Thermal stresses) (Crystallization)

VYDRIN, V.N.; BROVMAN, M.Ya.; SKORKIN, N.V.

Measuring tension in continuous rolling mills. Izv. vys. ucheb. zav.; chern. met. 6 no.6:100-105 '63. (MIRA 16:8)

1. Chelyabinskiy politekhnicheskiy institut.
(Rolling mills)

BROVMAN, M.Ya.

Using the method of characteristic curves for the calculation of power parameters in rolling. TSvet. met. 36 no.3:69-74 Mr '63. (MIRA 16:5)

(Rolling mills)

VYDRIN, V. N.; BROVMAN, M. Ya.; RIMEN, V. Kh.

Elastic longitudinal vibrations of strips being rolled on continuous mills. Izv. vys. ucheb. zav.; chern. met. 7 no. 4:83-87 '64.
(MIRA 17:5)

1. Chelyabinskiy politekhnicheskiy institut.

SKORKIN, N.V.; BROVMAN, M.Ya.

Efficient grooving for continuous blooming mills. Metallurg 9 no.7: 26-27 Jl '64. (MIRA 17:8)

1. Yuzhno-Ural'skiy mashinostroitel'nyy zavod.

BROVMAN, M.Ya.; GENZELEV, S.M.; ARSHANSKIY, M.I.; PIN'ZHAKOV, G.P.

Testing and starting an oxygen-blown converter with a 100-ton batch. Stal' 23 [i.e. 24] no.4:303-305 Ap '64.

(MIRA 17:8)

1. Yuzhno-Ural'skiy mashinostroitel'nyy zavod i Nizhne-Tagil'skiy metallurgicheskiy kombinat.

BROVMAN, M.Ya., inzh.; GENZELEV, S.M., inzh.

Durability and rigidity analysis of converters. Vest. mashinostr. 44 no. 4:7-14 Ap '64. (MIRA 17:5)

VYDRIN, V.N., doktor tekhn. nauk, prof.; BROVMAN, M.Ya., kand. tekhn. nauk; RIMEN, V.Kh., inzh.

Dynamometers for measuring stresses in continuous rolling mills. Izv. vys. ucheb. zav.; mashinostr. no.5:162-167 '64. (MIRA 18:1)

1. Chel'yabinskiy politekhnicheskiy institut (for Vydrin). 2. Yuzhno-Ural'skiy mashinostroitel'nyy zavod (for Brovman, Rimen).

BROVMAN, M.Ya.; RIMEN, V.Kh.

Evaluation of outstanding experimental data in mechanical tests.
Zav. lab. 30 no.7:860-862 '64. (MIRA 18:3)

1. Yuzhno-Ural'skiy mashinostroitel'nyy zavod.

ZYUZIN, Vladimir Ivanovich; BROVMAN, Mikhail Yakovlevich; MEL'NIKOV, Anatoliy Fedorovich

[Resistance to deformation of steels during hot rolling] Soprotivlenie deformatsii stalei pri goriachei prokatke. Moskva, Metallurgiia, 1964. 269 p. (MIRA 18:1)

KURDIANI, G.P.; BROVMAN, M.Ya.; MOTANOV, A.D.; KAMISHVILI, Sh.I.

Methods of calculating the parameters of force and power in rolling in drawing grooves. Soob. AN Gruz. SSR 36 no.3:633-640 D '64. (MIRA 18:3)

1. Gruzinskiy institut metallurgii. Submitted April 14, 1964.

BROVMAN, M.Ya. (Orsk)

Maximum rolling speeds. Izv. AN SSSR. Met. i gor. delo no.6: 165-169 N-D '64. (MIRA 18:3)

BROVMAN, M.Ya.; MARKOV, V.I.

Measuring scheme for the measurement of stresses. Zav. lab. 30 no.10:1266-1267 '64. (MIRA 18:4)

1. Yuzhno-Ural'skiy mashinostroitel'nyy zavod.

BROVMAN, M.Ya.; DODIN, Yu.S.

Calculation of temperature fields in rollers. Inzh.-fiz. zhur. no.11:77-81 N '64. (MIRA 18:2)

BROVMAN, M.Ya.; GENZELEV, S.M.; MURASHKO, L.I.; RUBINSHTEYN, Yu.Ye.; SKORKIN, N.V.; ARSHANSKIY, M.I.; PIN'ZHAKOV, G.P.

Results of a year's operation and investigation of an oxygen-blown converter with a 100 ton (Mg) capacity. Stal' 25 no.6: 508-511 Je '65. (MIRA 18:6)

1. Yuzhno-Ural'skiy mashinostroitel'nyy zavod i Nizhne-Tagil'skiy metallurgicheskiy kombinat.

BROVMAN, Mikhail Yakovlevich; GOLUBCHIK, R.M., red.

[Application of the plasticity theory in rolling] Primenenie teorii plastichnosti v prokatke. Moskva, Metallurgiia, 1965. 245 p. (MIRA 18:2)

BROVMAN, M.Ya.; GERTSEV, A.I.; ZELICHENOK, B.Yu., KOVTNEV, M.V., [illegible], V.Kh.; FIDEL', E.L.

Power parameters of rolling in rolls with a special shape of the surface. Stal' 25 no.3:251-253 Mr '65. (MIRA 18:4)

BROVMAN, M.Ya.; VYDRIN, V.N.; YERMOKHIN, F.K.; KISLYUK, V.A.; KRAYNOV, V.I.; LEVINTOV, S.D.; RIMEN, V.Kh.; SEREBRYAKOV, A.N.; SHEYDER, B.E.

Method of controlling the tension in continuous rilling mills. (MIRA 18:7)
Stal' 25 no.7:629-631 Jl '65.

L 10432-66 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/EWP(t)/T/EWP(z)/EWP(b)/EWA(c)

ACC NR: AM5011708 EWP(l)/EWP(h) BOOK EXPLOITATION UR

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Zyuzin, Vladimir Ivanovich; Brovman, Mikhail Yakovlevich; Mel'nikov, Anatoliy Fedorovich 44.55 44.55 44.55

Deformation resistance of steels during hot rolling (Soprotivleniye deformatsii staley pri goryachey prokatke), Moscow, Izd-vo "Metallurgiya," 1964, 269 p. illus., tables, diagm., biblio., Errata slip inserted. 2,320 copies printed.

TOPIC TAGS: rolling mill, metal deformation resistance, heat resistant steel, alloy steel

PURPOSE AND COVERAGE: This book considers the results of a complex theoretical and experimental investigation of the deformation resistance of steels and alloys as affected by physicochemical factors, thermomechanical parameters, and the nature of the development of deformation with time, as encountered in the actual hot rolling process. On the basis of new methods of investigation, reliable data are obtained on the deformation resistance of steels and alloys which can be used for the power parameter calculation in designing new mills, as well as for the determination of efficient operating conditions for hot rolling mills. The authors acknowledge the contributions by Rokotyan, Ye.S. (Professor, Doctor of Technical Sciences); Yermokhin, F.K. (Engineer, Yuzhuralmash Plant); Markov, V.L. (Engineer, Yuzhuralmash Plant); Volkov, V.N. (Engineer, Yuzhuralmash Plant). This book is designed for scientific workers and engineers interested in the investigation, designing, and exploitation of hot rolling mills. It may also be useful to aspirants and "VUZ" students.

Card 1/5 UDC:621.771.2.001.1

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ACC NR: AM5011708

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ACC NR: AM5011708

L 10432-66

ACC NR: AM5011708

SUBMITTED: 10Oct64 SUB CODE: MM, IE NO REF SOV: 123

OTHER: 023

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Card 5/5

L 03764-67 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW

ACC NR: AR6029491 SOURCE CODE: UR/0137/66/000/006/D007/D007

50
B

AUTHOR: Meyerovich, I. M.; Brovman, M. Ya.

TITLE: Problems in the theory of rolling ribbed sheets 19

SOURCE: Ref. zh. Metallurgiya, Abs. 6D46

REF SOURCE: Tr. Vses. n.-i. i proyektno-konstrukt. mashinostr. sb. 15, 1965, 93-114

TOPIC TAGS: metal rolling, metal pressing, ribbed sheet, deformation rate, creep

ABSTRACT: Some problems which arise in estimating the rate of deformation are examined, and a method for solving plane problems of the theory of plasticity is used. The creep line fields are individually examined during rolling and pressing. Formulas are derived for engineering calculations. N. Yudina. [Translation of abstract] [AM]

SUB CODE: 13/

Card 1/1 UDC: 621.771.001

L 8855-66 EWT(d)/EWT(m)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/EWP(b)/EWP(l)/EWA(h)/EWA(c) JD/HW

ACC NR: AP5026482 SOURCE CODE: UR/0286/65/000/019/0009/0009

INVENTOR: Zhukevich-Stosha, Ye. A.; Solov'yev, O. P.; Ritman, R. I.; Shaver, A. B.; Azimov, S. K.; Brovman, M. Ya.; Iskel', L. G.; Kurbatov, I. V.

ORG: none

TITLE: Planetary rolling mill. Class 7, No. 175025

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 19, 1965, 9

TOPIC TAGS: tube, tube rolling, rolling mill, metal rolling

ABSTRACT: This Author Certificate introduces a planetary rolling mill (based on Author Certificate No. 124398). For rolling tubes with variable cross section, the mill is equipped with a gear which meshes with the gears of the planetary rolls. The gear is turned by an auxiliary drive and a device which moves the mandrel during rolling, both of which are controlled by a copying attachment. Orig. art. has: 1 figure. [AZ]

SUB CODE: /3/ SUBM DATE: 29Jan64/ ATD PRESS: 4152

Card 1/1 UDC: 621.771.064

AM5015046 BOOK EXPLOITATION UR/

Benyakovskiy, Mark Aleksandrovich; Brovman, Mikhail Yakovlevich

The application of tensometry in rolling (Primeneniyé tenzometrii v prokatké) /Moscow/ Izd-vo Metallurgiya, 1965. 143 p. illus., biblio. 2787 copies printed. Editor of the publishing house: V. K. Shlepov; Technical editor: G. M. En'yakova.

TOPIC TAGS: rolling, strain gage, tensometry

PURPOSE AND COVERAGE: This book was intended for technologists, designers, and engineers and technicians in metallurgical and machine-building plants. It can be used also by students specializing in the mechanical equipment of rolling mills and in the technique of rolling. Design principles, manufacturing methods, and conditions of application of instruments for measuring the pressure of the metal on the roll, the rolling moment, and the tensile forces of the strip on rolling mills are outlined. Auxiliary equipment is described and methods of connecting it are discussed. K. M. Radchenko assisted in writing Chapter IV.

Card 1/2 UDC: 621.771.2

AM5015046

TABLE OF CONTENTS:

SUB CODE: 13 /SUBM DATE: 14Jan65 /SOV REF: 028 /OTH REF: 006

Card 2/2

BROVMAN, Ya. S.

AID P - 4118

Subject : USSR/Electricity

Card 1/2 Pub. 27 - 5/33

Author : Brovman, Ya. S., Eng., Novosibirsk

Title : Electric drive of large machine tools.

Periodical : Elektrichestvo, 12, 19-24, D 1955

Abstract : The author discusses the use of squirrel-cage induction motors and regulated drives on the scheme generator-motor as the drive types which more and more will replace d-c motors in large machine tools. He presents a comparison of electric characteristics of two systems of generator-motor used to drive the table of a planing machine. He finds advantages in the double-drive system with a 2:1 range of regulation at constant capacity. The author thinks the system of automatic control with rotating self excited regulators and the systems with compounding and with intermediate negative feedback control to be deficient. He briefly examines problems

AID P - 4118

Elektrichestvo, 12, 19-24, D 1955

Card 2/2 Pub. 27 - 5/33

of selection of antioscillation feedback controls and discusses requirements for a rotating regulator with an opposing differential field. Seven connection diagrams.

Institution : None

Submitted : Ag 11, 1955

BROVMAN Ya. S.

AID P - 4843

Subject : USSR/Engineering

Card 1/1 Pub. 103 - 3/26

Authors : Brovman, Ya. S. and N. G. Tevs

Title : Selection of a main electric drive for a heavy-duty metal-cutting machine.

Periodical : Stan. i instr., 2, 11-14, F 1956

Abstract : The authors present various considerations affecting the smoothness and efficiency of operation of a heavy-duty metal-cutting machine. They analyze several electric drives combined with mechanical transmissions and give graphical illustrations. One photo, 3 drawings and 4 diagrams.

Institution : None

Submitted : No date

BROVMAN, Ya. S.

AID P - 5161

Subject : USSR/Engineering

Card 1/1 Pub. 103 - 2/19

Authors : Brovman, Ya. S., and Tevs, N. G.

Title : Selection of electric drive for feeding mechanisms of heavy machine-tools.

Periodical : Stan. i instr., 6, 9-12, Je 1956

Abstract : The authors discuss several electric drives which are used for heavy machine-tools. They analyze the d-c motor drive with a wide speed range of stepless transmission, the d-c motor drive with a two-step transmission box, and the two-motor drive with a differential reduction gearing. The authors discuss and emphasize the importance of the proper selection of a drive for the efficient use of heavy machine-tools. Four drawings and 5 graphs.

Institution : Novosibirsk Heavy Hydraulic Pressing Machine Plant. ("Tyazhstankogidropress")

Submitted : No date

BENYAKOVSKIY, Mark Aleksandrovich; BROVMAN, Mikhail Yakovlevich. Prinimal uchastiye RADCHENKO, K.M.

[Using tensiometry in rolling mill practice] Primenenie tenzometrii v prokatke. Moskva, Metallurgiia, 1965. 143 p. (MIRA 18:4)

BROVMAN, Ya. S.

AID P - 5189

Subject : USSR/Engineering

Card 1/1 Pub. 103 - 11/24

Authors : Brovman, Ya. S., and N. G. Tevs

Title : Stability of cutting with a devided electric drive of heavy-duty type.

Periodical : Stan. i instr., 7, 33-34, Jl 1956

Abstract : The authors discuss the heavy-duty cutting process done by machines which have two separate electric drives, one for general motion and the other for feed only. The analysis reveals the high and low points of such machining Practical suggestions are given. Six formulae and 1 diagram.

Institution : None

Submitted : No date

BROVMAN, Ya.S.; TEVS, N.G.

Steadiness of cutting operations with divided heavy-duty electric drive. Stan. i instr. 26 no.7:33-34 Jl '56. (MLRA 9:10)

(Metal cutting)

BROVMAN, Ya.S.; KOCHUBIYEVSKIY, F.D.; FEL'DMAN, A.V.

Transistor amplifiers in regulated electric drives.
Elektrichestvo no.5:32-38 My '62. (MIRA 15:5)

1. Novosibirskiy zavod tyazhelykh stankov i krupnykh gidropressov.
(Electric driving)
(Transistor amplifiers)

BROVMAN, Ya.S.; TUV, A.M.

Improving the reliability of electric equipment of heavy machine tools. Stan.i instr. 33 no.12:3-7 D '62. (MIRA 16:1)
(Machine tools--Electric driving)

BROVMAN, Ya.S.

Controlled electric drives of heavy-duty planers and multiple purpose machine tools. Stan. i instr. 34 no.11:3-6 N '63. (MIRA 16:12)

BROVMAN, Ya. S.

Controlled electric drives of heavy-duty boring machines. Stan. i instr. 35 no.5:7-11 My '64. (MIRA 17:7)

BROVMAN, Yakov Semenovich; KAGAN, Valeriy Gennadiyevich; KOCHUBIYEVSKIY, Feliks Davydovich. CHILIKIN, M.G., prof., red.

[Electric drives with transistor control. Systems with electromechanical converters (PMK - G - D)] Elektroprivody s poluprovodnikovym upravleniem. Sistemy s elektromashinnymi preobrazovateliami (PMK - G - D). Moskva, Energiia, 1964. 88 p. (Biblioteka po avtomatike, no.107) (MIRA 17:9)

BROVMAN, Ya.S.

Follow-system electric drives of metal cutting machines. Elektrichestvo no.8:13-18 Ag '64. (MIRA 17:11)

1. Novosibirskiy nauchno-issledovatel'skiy elektrotekhnicheskiy institut.

BROVMAN, Yakov Semenovich; KAGAN, Valeriy Gennadiyevich; KUCHUBIYEVSKIY, Feliks Davydovich; NAYDIS, Veniamin Abramovich; CHILIKIN, M.G., red.; LEBEDEV, A.M., red.

[Direct current systems with amplidyne amplifiers] Sistemy postoiannogo toka s elektromashinnymi usiliteliami. Moskva, Energiia, 1964. 79 p. (Biblioteka po avtomatike, no.119; elektroprivody s poluprovodnikovym upravleniem) (MIRA 18:1)

L 44001-66 EWT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AP6029947 SOURCE CODE: UR/0413/66/000/015/0112/0112

INVENTOR: Bay, R. D.; Breslav, I. Z.; Brovman, Ya. S.; Fel'dman, A. V.

ORG: none

TITLE: Linear digital circular and elliptic interpolator. Class 42, No. 184528

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 112

TOPIC TAGS: interpolation, interpolator

ABSTRACT: The linear digital circular and elliptical interpolator whose block diagram is shown in Fig. 1 is described. It consists of a unit for measuring the frequency from two coordinates by means of two binary multipliers having one common frequency divider and two register-counters. The latter contain negative feedback in the form of an additional counting block. It is applied from the outputs

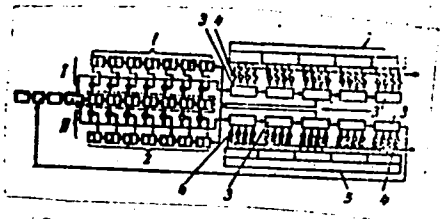

Fig. 1. Linear digital interpolator

I, II - Decimal multipliers; 1, 2 - register-counters; 3 - binary-decimal counter; 4 - voltage pulse gates; 5 - decade register.

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UDC: 62-503.52-529: 681.142

L 44001-66
ACC NR: AP6029947

of each binary multiplier of one coordinate to the counting input of the register-counter from the binary multiplier for the other coordinate. The interpolator also contains one decimal multiplier for each coordinate. These, in turn, are comprised of a decade (binary coded decimal) counter, voltage pulse gates, and a decade register for the entry of initial data corresponding to the radius of curvatures, ellipse minor axes, and linear displacements. The counting input of each decade counter is connected to the output of the binary multiplier of one coordinate. The output of each decade from a pair of decades of the same order belonging to the decade counters from each coordinate, which assure the entry of five pulses into these decades, is connected to the counting input of the register-counter of the other coordinate. This counter arrangement facilitates a more convenient entry of initial data and at the same time simplifies the programming for the interpolation of circular or elliptical arcs whose angles are multiples of $\pi/2$. Orig. art. has: 1 figure. [BD]

SUB CODE: 09/ SUBM DATE: 25Jun62/ ATD PRESS: 5070

Card 2/2 blg

36112 Rekordnyye tempy prokhodki vertikal'nogo stvola. (Opyt stroiteley Glavkaragandashakhtstroya). Mekhanizatsiya trudoyemkikh i tyazhelykh rabot, 1949, No. 11, S. 31-33.

SO: Letopis' Zhrunal' nykh Statey, No. 49, 1949

BROVMAN, YA.V.

Reducing constructon periods of coal mines
Ugol' 27 no.5, 1952

1. BROVMAN, YA. V., Eng.

2. USSR (600)

4. Mining Engineering

7. Method for determining the duration of coal mine construction. Ugol' No 1 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

BROVMAN, Ya.V., inzhener, redaktor; SMIRNOV, L.V., redaktor; KOROVENKOVA, Z.A., tekhnicheskiy redaktor; NADEINSKAYA, A.A., tekhnicheskiy redaktor

[Mining practices of the Stalinshakhtostroi combine] Opyt kombinata Stalinshakhtostroi po provedeniiu gornykh vyrabotok. Moskva, Ugletekhizdat, 1954. 218 p. [Microfilm] (MLRA 8:4)
(Coal mines and mining)

BROVMAN, Ya.V., inzhener, redaktor; MELIKSETOV, S.S., inzhener, redaktor; NADEINSKAYA, A.A., tekhnicheskiy redaktor.

[Organization of rapid sinking of vertical mine shafts in the Donets Basin; transactions of a scientific and technological conference] Organizatsiia skorostnoi prokhodki vertikal'nykh shvolov shakht v Donbasse; trudy nauchno-tekhnicheskoi konferentsii. Pod red. Ia.V.Brovmana i S.S.Meliksetova, Moskva, Ugletekhizdat, 1955. 294 p. (MLRA 8:12)

1. Vsesoyuznoye nauchnoye inzhenerno-tekhnicheskoye gornoye obshchestvo. Stalinskoye oblastnoye otdeleniye.
(Donets Basin--Shaft sinking)

BROVMAN, Ya.V.

Choice of an effective mine raise. Ugol' 30 no.5:18-24 My '55.
(MLRA 8:6)

1. Kombinat Stalinshakhtostroy
(Shaft sinking)

BROVMAN, Ya.V., inzhener

Efficient organization method for the initial stage of vertical shaft sinking. Ugol' 30 no.10:13-16 O'55. (MLRA 8:12)
(Shaft sinking)

ANDROS, I.P., inzh.; ASSONOV, V.A., kand. tekhn. nauk.; BERNSHTEYN, S.A., inzh.; BOKIY, B.V., prof.; BROVMAN, Ya.V., inzh. BONDARENKO, A.P., inzh.; BUCHNEV, V.K., kand. tekhn. nauk; VERESKUNOV, G.P., kand. tekhn. nauk; VOLKOV, A.F., inzh.; GELESKUL, M.N., kand. tekhn. nauk; GORODNICHEV, V.M., inzh.; DEMENT'YEV, A.Ya., inzh.; DOKUCHAYEV, M.M., inzh.; DUBNOV, L.V., kand. tekhn. nauk; YEPIFANTSEV, Yu.K., kand. tekhn. nauk.; YERASHKO, I.S., inzh.; ZHDANOV, S.A., kand. tekhn. nauk; ZIL'BERBROD, A.F., inzh.; ZINCHENKO, E.M., inzh.; ZORI, A.S., inzh.; KAPLAN, L.B., inzh.; KATSAUROV, I.N., dots.; KITAYSKIY, E.F., inzh.; KRAVTSOV, Ye.P., inzh.; KRIVOROG, S.A., inzh.; KRINITSKIY, L.M., kand. tekhn. nayk; LITVIN, A.Z., inzh.; MALEVICH, N.A., kand. tekhn. nauk; MAN'KOVSKIY, G.I., doktor tekhn. nauk; MATKOVSKIY, A.L., inzh.; MINDELI, E.O., kand. tekhn. nauk; NAZAROV, P.P., kand. tekhn. nauk; NASONOV, I.D., kand. tekhn. nauk; NEYYENBURG, V.Ye., kand. tekhn. nauk; POKROVSKIY, G.I., prof., doktor tekhn. nauk; PROYAVKIN, E.T., kand. tekhn. nauk; ROZENBAUM, inzh.; ROSSI, B.D., kand. tekhn. nauk; SEMEVSKIY, V.N., doktor tekhn. nauk; SKIRGELLO, O.B., inzh.; SUKHUT, A.A., inzh.; SUKHANOV, A.F., prof., doktor tekhn. nauk; TARANOV, P.Ya., kand. tekhn. nauk; TOKAROVSKIY, D.I., inzh.; TRUPAK, N.G., prof., doktor tekhn. nauk; FEDOROV, S.A., prof., doktor tekhn. nauk; FEDYUKIN, V.A., inzh.; KHOKHLOVKIN, D.M., inzh.; KHRABROV, N.I., kand. tekhn. nauk; CHEKAREV, V.A., inzh.; CHERNAVKIN, N.N., inzh.; SHREYBER, B.P., kand. tekhn. nauk; EPOV, B.A., kand. tekhn. nauk; YAKUSHIN, N.P., kand. tekhn. nauk; YANCHUR, A.M., inzh.; YAKHONTOV, A.D., inzh.; POKROVSKIY, N.M., otvetstvennyy red.; KAPLUN, Ya.G. [deceased], red.; MONIN, G.I., red.; SAVITSKIY, V.T.,

(Continued on next card)

ANDROS, I.P.----(continued) Card 2.
red.; SANOVICH, P.O., red.; VOLOVICH, M.Z., inzh., red.; GORITSKIY, A.V., inzh., red.; POLUYANOV, V.A., inzh., red.; FADEYEV, E.I., inzh., red.; CHECHKOV, L.V., red. izd-va; PROZOROVSKAYA, V.L., tekhn. red.; NADEINSKAYA, A.A., tekhn. red.

[Mining; an encyclopaedic handbook] Gornoe delo; entsiklopedicheskii spravochnik. Glav. red. A.M. Terpigorev. Moskva, Gos. nauchno-tekhnicheskoe izd-vo lit-ry po ugol'noi promyshl. Vol.4. [Mining and timbering] Provedenie i kreplenie gornykh vyrabotok. Red-kollegiia toma: N.M.Pokrovskii... 1958. 464 p. (MIRA 11:7)

(Mine timbering) (Mining engineering)

BROVMAN, Yakov Vladimirovich; KALMYKOV, Ye.P., otv.red.; SANOVICH, P.O., red.izd-va; SHKLYAR, S.Ya., tekhn.red.; LOMILINA, L.N., tekhn.red.

[Organization of coal mine construction] Organizatsiia stroitel'stva ugol'nykh shakht. Moskva, Ugletekhizdat, 1959. 319 p. (MIRA 12:6)
(Mining engineering)

BROVMAN, Ya.V.

New developments in the construction of mines. Nauka i zhyttia 9 no.8:12-16 S '59. (MIRA 13:1)

1. Zamestitel' glavnogo inzhenera kombinata "Stalinshakhtostroy," Stalino.
(Mining engineering)

ALYMOV, Aleksandr Nikolayevich, kand.ekonom.nauk; BROVMAN, Ya.V., otv.red.; ZVARYKINA, L.N., red.izd-va; BOLDYREVA, Z.A., tekhn.red.

[Shaft sinking costs and ways to reduce them] Stoimost' prokhodki stvolov i puti ee snizheniia. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 189 p. (MIRA 14:4)
(Shaft sinking—Costs)

BROVMAN, Ya.V.; SHRAYMAN, L.I.

Bore bits of new design. Gor. zhur. no. 11:51-53 N '60.
(MIRA 13:10)

1. Kombinat Stalinshakhtostroy (for Brovman). 2. Ukrainskiy nauchno-issledovatel'skiy institut organizatsii i mekhanizatsii shakhtnogo stroitel'stva (for Shrayman).
(Boring machinery)

BROVMAN, Ya.V., inzh.; KHANIN, A.M., inzh.; VASIL'YEV, A.A., inzh.; SHRAYMAN, L.I.; POPOV, A.A.; KALININA, M.D.

Results of testing new boring bits. Shakht. stroi. 4 no. 6:8-12 Je '60. (MIRA 13:11)

1. Kombinat Stalinshakhtostroy (for Brovman, Khanin). 2. Trest Stalinshakhtostroy (for Vasil'yev). 3. Ukrainskiy nauchno-issledovatel'skiy institut organizatsii i mekhanizatsii shakhtnogo stroitel'stva (for Shrayman, Popov, Kalinina).
(Boring machinery)

BROVMAN, Yakov Vladimirovich; KOSTON'YAN, A.Ya., red. izd-va; SUKHININA, N.D., tekhn. red.; GALANOVA, V.V., tekhn. red.

[Planning, designing and manufacturing headframes] Nadshakhtnye kopry; proektirovanie, raschet i konstruktsiia. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1961. 238 p. (MIRA 15:1)

(Mine hoisting)

BROVMAN, Ya.V., inzh.

Urgency of introducing advanced techniques and equipment in mine construction. Shakht. stroi. 5 no.5:1-5 My '61. (MIRA 14:6)

1. Kombinat Stalinshakhtostroy.
(Mining engineering)(Building)

BROVMAN, Ya.V.; NOSOVITSKIY, L.I.; BEZDUDNYY, V.G.

"Handbook for mining engineers and technicians." Shakht. stroi. 7 no.6:31-32 Je '63. (MIRA 16:7)

1. Zamestitel' glavnogo inzhenera kombinata Donetskshakhtostroy (for Brovman). 2. Zamestitel' glavnogo mekhanika kombinata Donetskshakhtostroy (for Nosovitskiy). 3. Glavnyy inzh. tresta Shakhtostroymekhanizatsiya (for Bezdudnyy).
(Mining engineering)

ACC NR: AT7004919 SOURCE CODE: UR/3136/66/000/186/0001/0040

AUTHOR: Brovman, Ye. G.; Kagan, Yu.

ORG: none

TITLE: Phonon spectrum of metals. I. Phonon spectrum of metals. II. Vibration spectrum of tin

SOURCE: Moscow. Institut atomnoy energii. Doklady, IAE-1186, 1966. O fononnom spektre metallov. I. O fononnom spektre metallov. II. Spektr kolebaniy olova, 1-40

TOPIC TAGS: metal physical property, tin, phonon spectrum, phonon interaction, vibration spectrum, electron scattering, ion interaction

ABSTRACT: In view of the fact that earlier investigations by the authors have shown that long-range interaction must be taken into account in a consistent description of the spectrum of phonons in the lattice of a metal, such as tin, the authors analyze this spectrum in this paper by separating the long-range interaction in explicit form, making it possible to decrease the number of force constants that have to be determined by experiment. It is shown first that the phonon spectrum of the metals can be determined with great accuracy within the framework of the usual adiabatic approximation, and that the correction terms can be obtained by ordinary stationary perturbation theory. It is shown that this reduces the determination of the metal phonon frequency to a calculation of the energy levels of the electron system in the field of rigidly fixed ions. This makes it possible to use the theory of electron scatter-

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ACC NR: AT7004919

ing by ionic cores. The authors then derive an expression for the effective interaction between the ions and the metals and calculate the dynamic vibration matrix for the phonons in the metal. Concrete calculations are then presented for white tin, with due allowance made for the specific feature of the scattering of cold neutrons by its lattice. It is shown that to determine the phonon spectrum of tin it is necessary to determine experimentally five parameters, the values of which are given. The relative role of the long-range and short-range forces in the formation of the phonon spectrum of tin is then analyzed. Orig. art. has: 6 figures and 63 formulas.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 002/ OTH REF: 011

Card 2/2

L 1395-66 EWT(m)/T/EWP( )/EWP(b)/EWA(c) IJP(c) JD
ACCESSION NR: AT5022119 UR/3136/64/000/761/0001/0027

AUTHOR: Brovman, Ye. G.; Kagan, Yu.

TITLE: On the lattice vibration spectrum of white tin

SOURCE: Moscow. Institut atomnoy energii. Doklady, IAE-761, 1964. O spektre kolebaniy reshetki belogo olova, 1-17

TOPIC TAGS: tin, group N element, lattice vibration spectrum, vibration frequency, dynamic matrix, group theory

ABSTRACT: A theoretical treatment of the lattice vibration of white tin (β - modification) is presented. The calculation is based on the Born von Kárman model. Ten force constants, which make up the complete dynamic matrix consisting of three coordination spheres, were used. The interaction with the fourth coordination sphere was assumed to be centrally symmetrical. In the evaluation of the dynamic matrix elements, use was made of the experimentally determined elastic lattice constants reported by I. A. Rayne and B. S. Chandrasekhar (Phys. Rev., 120, 1658, 1960) and of the data on the anisotropy of the Moessbauer Effect obtained by V. G. Shapiro and V. S. Shpinel' (ZhETF 46, 1960, 1964). The distribution of the 18 nearest atoms about a given central atom is shown in Fig. 1 on the Enclosure. The values of the derived force constants are given in Table 1 on the Enclosure. Expressions for the

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ACCESSION NR: AT5022119

force matrices for all the 18 nearest atoms and for the elements of the dynamic $D\alpha\beta\left(\frac{\bar{f}}{ik}\right)$ have been derived and are presented in Appendices I and II respectively. The frequency branches in the (100), (110), and (001) directions were derived by diagonalizing the dynamic matrix and by applying the group theoretical method of "reduced group symmetry." The expressions for the various frequencies are given in an appendix. The results of calculations are shown graphically. It is concluded that the nature of the anisotropy of the Moessbauer Effect is largely determined by the optical frequencies. Orig. art. has: 3 tables, 6 graphs, and 68 equations.

ASSOCIATION: Gosudarstvennyy komitet po ispol'zovaniyu atomnoy energii SSSR (State Committee for the Use of Atomic Energy, SSSR); Institut atomnoy energii im. I. V. Kurchatova (Institute for Atomic Energy)

SUBMITTED: 00 ENCL: 02 SUB CODE: SS

NO REF SOV: 003 OTHER: 013

Card 2/4

L 1395-66
ACCESSION NR: AT5022119

ENCLOSURE: 01

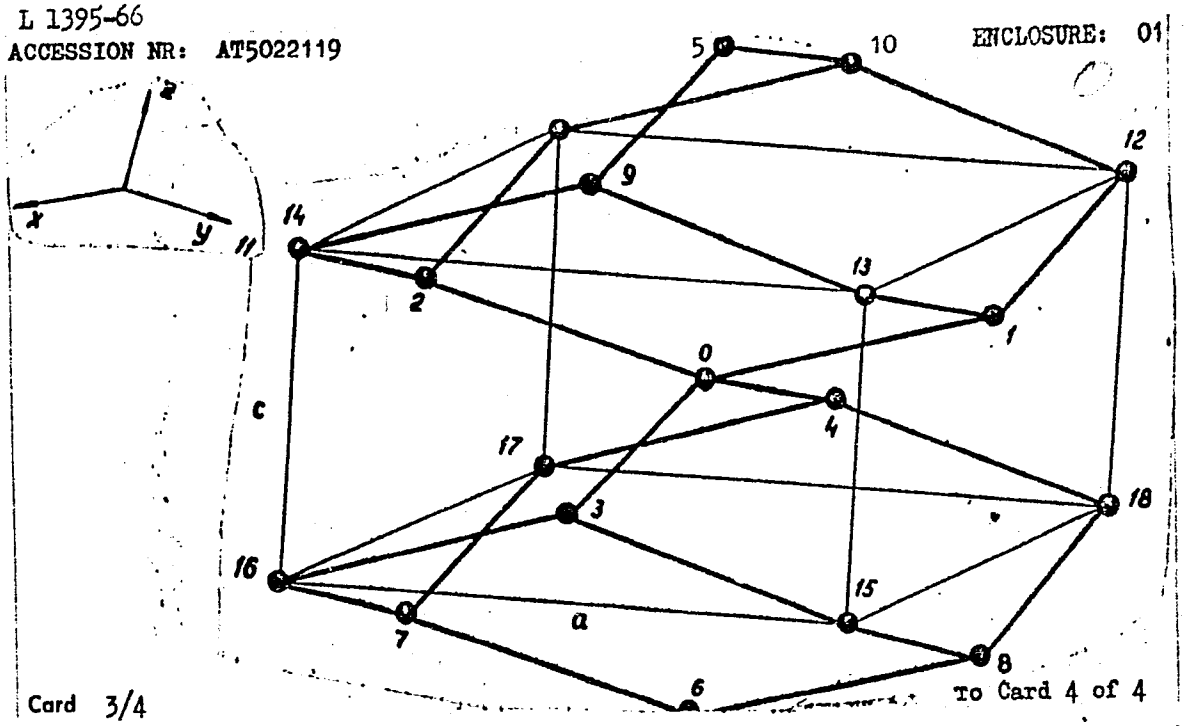

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Fig. 1. Distribution of the nearest 18 atoms about a given atom. Sphere I - atoms 1, 2, 3, 4; sphere II - 5, 6; sphere III - 7, 8, 9, 10; sphere IV - 11, 12, 13, 14, 15, 16, 17, 18

Table 1

α_1	β_1	γ_1	δ_1	α_2	α_3	β_3	γ_3	δ_3	λ
2562	-5.140	-5.777	2.410	8.28	10.990	0.78	13.478	8.672	3.0

44591
S/181/63/005/001/018/064
B102/B186

AUTHORS: Chernoplekov, N. A., Zemlyanov, M. G., Brovman, Ye. G., and Chicherin, A. G.

TITLE: Investigation of inelastic scattering of neutrons from a Ti-Zr alloy

PERIODICAL: Fizika tverdogo tela, v. 5, no. 1, 1963, 112-117

TEXT: The mechanism of inelastic scattering of cold neutrons from a disordered Ti-Zr alloy (62% Ti, 38% Zr) was investigated by the time-of-flight method. A general theory is given which interrelates the single-phonon incoherent scattering cross section with the frequency spectrum of of any crystal. The ratio of the components was so chosen according to theoretical considerations as to make the mean amplitude of coherent scattering equal to zero: $\langle a_n \rangle = \sum_j A_j a_j \equiv 0$; also the single-phonon coherent scattering cross section $d^2\sigma/d\Omega d\varepsilon$, where ε is the change in neutron energy, will be zero. For $a_{Ti} = -0.38 \cdot 10^{-12}$ cm and $a_{Zr} = 0.62 \cdot 10^{-12}$ cm,

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$\langle a \rangle = 0$, and $d^2\sigma/d\Omega d\ldots = 0$. The transmissivity of the alloy for cold neutrons was 0.22. The spectrum of the neutrons scattered was measured between $5 \cdot 10^{-3}$ and 10^{-1} ev. After corrections for the detector's deviation from the 1/v-law and for neutron deceleration by the air the spectrum shows two peaks: one between 0.01 and 0.02 ev the other somewhat below 0.03 ev. The experimental data were evaluated by a method of Zemlyanov et al. (MAGATE Conference, Canada, Chalk-River, Sept., 10-14, 1962). This method gives the energy dependence of the function

$$Y(\omega) = g(\omega)\left[\frac{\sigma_{Zr}}{M_{Zr}} + A_{Ti}\,\overline{C_{Ti}(\omega)}^{2}\left(\frac{\sigma_{Ti}}{M_{Ti}} - \frac{\sigma_{Zr}}{M_{Zr}}\right)\right]$$

, from the trend of which some conclusions can be drawn as to the spectrum. The forbidden bands of the frequency spectrum of the alloy were not observed to vanish completely. In both the l-f and the h-f range the spectrum shows relatively deep dips which, however, are shallower than those of the ordered lattices of V and Ni. Contrary to what Dean (Proc. RBY. Soc. 254, 507, 1960) predicted, the optical part of the spectrum was not found to be split. This, however, could be due to insufficient resolution of the neutron spectrometer.

Investigation of inelastic ... S/181/63/005/001/018/064
B102/B186

There are 2 figures.

ASSOCIATION: Institut atomnoy energii im. I. V. Kurchatova Moskva
(Institute of Atomic Energy imeni I. V. Kurchatov, Moscow)

SUBMITTED: July 21, 1962

Card 3/3

ACC NR: AT6001614 SOURCE CODE: UR/3136/65/000/928/0001/0029

AUTHOR: Brovman, Ye. G.; Kagan, Yu.

ORG: none

TITLE: Phonon spectrum of white-tin lattice

SOURCE: Moscow. Institut atomnoy energii. Doklady, IAE-928, 1965. O fononnom spektre reshetki belogo olova, 1-29

TOPIC TAGS: crystal lattice, phonon spectrum, tin

ABSTRACT: The results are reported of a consistent analysis of the dynamic problem of white-tin-lattice oscillations, within the framework of a Born-Karman model; all force constants entering the dynamic matrix for the first three coordination spheres are used. It is assumed that the interaction with the 4th, 5th, and 6th spheres can be approximately described, for each sphere, by one central and one noncentral force constant. In addition to elasticity moduli (I. A. Rayne and B. S. Chandrasecar, Phys. Rev., 120, 1658, 1960), experimental data on characteristic boundary spectrum frequencies in one of symmetrical directions has been used for

Card 1/2

ACC NR: AT6001614

determining the dynamic-matrix elements. Dispersion curves in symmetrical directions, a function of frequency distribution of the phonon spectrum, specific heat (capacity), and probability of the Messbauer effect are determined. The values of these quantities are compared with the available experimental data. Some explanations are offered for the observed anomalies of specific heat at low temperatures and an anisotropic Messbauer effect within 77—400K; at near-absolute-zero temperatures the anisotropy practically vanishes or can even be reversed. Orig. art. has: 8 figures, 66 formulas, and 2 tables.

SUB CODE: 11, 20 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 017

Card 2/2 mcp

L 16925-66 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) SOURCE CODE: UR/0181/66/008/005/1402/1416

ACC NR: AP6015457

39
B

AUTHOR: Brovman, Ye. G.; Kagan, Yu.

ORG: none

TITLE: Phonon spectrum of the white tin lattice

SOURCE: Fizika tverdogo tela, v. 8, no. 5, 1966, 1402-1416

TOPIC TAGS: tin, phonon spectrum, Mossbauer effect

ABSTRACT: A systematic study is made of the dynamic problem of lattice oscillations within the framework of the Born-Karman model. Use is made of all force constants in the complete dynamic oscillation matrix for the first three coordination spheres; it is assumed that the interaction with the 4th, 5th, and 6th coordination spheres can be approximated for each sphere by one central and one noncentral force constant. Dispersion curves along three symmetric directions, the function phonon spectrum frequency distribution, heat capacity and Debye temperature, and probability of the Mossbauer effect are in good agreement with experimental data. Values of heat capacity at $T >$ > 100°K and of probability of Mossbauer effect at $T >$ 200°K higher than those calculated are explained by anharmonism. Theoretical curves of anisotropy of Mossbauer effect compares favorably with experimental data (errors are indicated); value of aniso-

Card 1/2

ACC NR: AP6015457

tropy changes sharply with temperature and as $T \to 0$, it tends to disappear or even change sign. Orig. art. has: 3 figures, 2 tables, 8 formulas.

SUB CODE: 20/ SUBM DATE: 20Sep65/ ORIG REF: 003/ OTH REF: 015

awm

Card 2/2

BROVTSEV, S. G.

AID P - 5569

Subject : USSR/Aeronautics - helicopters

Card 1/1 Pub. 135 - 8/27

Authors : Brovtsev, S. G., Lt. Col., mil. pilot class I and S. Kh. Atabekyan, Eng.-Major.

Title : Flying the helicopters in mountains

Periodical : Vest. vozd. flota, 6, 44-51, Je 1956

Abstract : The authors, on the basis of experience gained in their unit, describe in detail the special features of piloting technique in flying a helicopter (take-off, flying, and landing) in mountains. Five graphs. The article merits attention.

Institution : None

Submitted : No date

TARNARUTSKIY, M.A., inzh.; ZHOLOBOV, B.Kh., inzh.; BROVTSEV, V.A., inzh.

Machine for the welding of flanges to pipes. Svar. proizv. no.9:20-22 S '61. (MIRA 14:8)

1. Luganskiy teplovozostroitel'nyy zavod im. Oktyabr'skoy revolyutsii.
(Electri. welding--Equipment and supplies)
(Pipe flanges--Welding)

ZHOLOBOV, B. Kh., inzh.; TARNARUTSKIY, M. A., inzh.; BROVTSEV, V. A., inzh.

Machine for the cutting of shaped ingots. Svar. proizv. no.10:30-31 O '62. (MIRA 15:10)

1. Luganskiy teplovozostroitel'nyy zavod im. Oktyabr'skoy revolyutsii.

(Gas welding and cutting)

ZHOLOBOV, B.Kh., inzh.; TARNARUTSKIY, M.A., inzh.; BROVTSEV, V.A., inzh.

Mechanized cutting and welding. Mashinostroenie no.5:82-85 S-O '63. (MIRA 16:12)

1. Luganskiy teplovozostroitel'nyy zavod.

ZHOLOBOV, B.Kh., inzh.; TARNARUTSKIY, M.A., inzh.; BROVTSEV, V.A., inzh.

Equipment for the automatic welding of girth joints on parts of fluid flywheels. Svar.proizv. no.11:37 N '62. (MIRA 15:12)

1. Luganskiy teplovozostroitel'nyy zavod im. Oktyabr'skoy revolyutsii.
(Flywheels—Welding)

TARNARUTSKIY, M.A., inzh.; ZHOLOBOV, B.Kh., inzh.; BROVTSEV, V.A., inzh.

Machine for welding tips to long, small-diameter tubes.
Svar. proizv. no.11:32-33 N'63. (MIRA 17:5)

1. Luganskiy teplovozostroitel'nyy zavod im. Oktyabr'skoy revolyutsii.

ZHOLOBOV, B.Kh., inzh.; TARNARUTSKIY, M.A., inzh.; BROVTSEV, V.A., inzh.

Modernization of the machine for simultaneous gas-torch cutting of shaped billets with seven cutting torches. Mashinostroenie no. 2:32-33 Mr-Ap '64. (MIRA 17:5)